

Historic, archived document

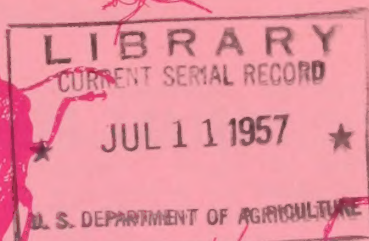
Do not assume content reflects current
scientific knowledge, policies, or practices.





VOL. 7 No. 27

JULY 5, 1957



Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER higher than for several years in Missouri, severe in corn in northern Alabama but generally light in Indiana. Emergence complete in most areas of Nebraska. (pp. 527, 542). GRASSHOPPER hatch about complete in Kansas. Damage to alfalfa and pastures in Missouri. Light to threatening some counties of North Dakota. Adult *Melanoplus mexicanus* in eastern Nebraska and as far north as central Kansas. (p. 527). CHINCH BUG moderate to severe on corn and sorghum in scattered areas of Missouri. Some local damage in central Kansas. (p. 528).

FALL ARMYWORM damage heavy on corn in south central Oklahoma. (p. 528). High populations of CORN LEAF APHID on sorghum and corn in Oklahoma, Missouri and north central Texas. (p. 529).

PLANT BUGS continue abundant in legumes in several States. (p. 530). High counts of POTATO LEAFHOPPER in Illinois alfalfa. Severe yellowing in Missouri. Several States report problem on potatoes. Light to moderate in northeast Nebraska and abundant in Delaware. (pp. 531, 533, 542).

EUROPEAN RED MITE continues to increase in southern areas of Illinois and Indiana. ORCHARD MITES serious in southeast Pennsylvania. (pp. 532, 542). Ten MEXICAN FRUIT FLY adults trapped in Tijuana, MEXICO. (p. 533).

SIX-SPOTTED LEAFHOPPER unusually heavy on vegetables in Wisconsin. Virus transmitted by this insect appearing in Iowa. (p. 534). SOUTHERN ARMYWORM and related species unusually troublesome on truck crops in Louisiana and Mississippi. (p. 535).

BOLL WEEVIL threat serious in many North Carolina counties. Conditions favorable for buildup in west Tennessee. Infestations continue lighter than usual in Arkansas. First-generation weevils appearing in several States. (p. 537). FLEAHOPPERS heavy in wide areas of Texas. (p. 537).

JAPANESE BEETLE outstanding insect pest in Virginia at this time. More abundant than usual in Maryland and causing considerable injury in Delaware, Pennsylvania and some North Carolina counties. Infestations reported from two north Georgia counties. First adult at East St. Louis, Illinois, June 19. (p. 539).

HORN FLY populations high in Oklahoma and Iowa. (p. 540). MOSQUITOES abundant in areas of Nevada, Nebraska, Idaho and Utah. (p. 540).

Revised SURVEY METHOD for adult GRASSHOPPERS. (p. 543).

ADDITIONAL NOTES. (p. 542). CORRECTION. (p. 542).

Reports in this issue are for the week ending June 28 unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

JULY 1957

The Weather Bureau's 30-day outlook for July calls for temperatures to average above seasonal normals over the southern half of the nation and also over the Ohio Valley and Middle Atlantic States. Below normal temperatures are indicated over the Northwestern quarter of the country. In other areas about normal temperatures are predicted. Precipitation is expected to exceed normal over the Pacific Northwest and Northern Plains as well as in extreme Southeast. Subnormal amounts are indicated over Southern New England, Middle Atlantic States and lower Ohio Valley. In the large remaining area of the nation near normal rainfall is indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook," published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING JULY 1

A destructive hurricane, more wet weather and floods in the mid-continent area, continued drought in sections along the northeastern coast, and a southwestern heat wave were the week's weather highlights.

Audrey, the season's first and probably the worst June hurricane on record, devastated southwestern Louisiana coastal areas and left a belt of heavy rainfall along her path from the Texas-Louisiana border to central New York.

Heaviest casualties and greatest destruction from winds and tides extended from Sabine Lake through Cameron, an inter-coastal city, to Cote Blanche Bay. Latest estimates placed the death toll in this area at 400 and the list of injured at 1000; and an additional 10 deaths occurred in the Texas coastal area. Main property losses included the destruction of or severe damage to 90-95 percent of all buildings in Cameron and lower Vermillion Parishes and thousands of automobiles and much farm equipment destroyed; while farther inland roof damages, shattered windows, downed trees, and power and communication lines were extensive. Salt water inundating large rice acreage, corn blown down and a flooded cotton field were the main crop losses. Several tornadoes fanned by Audrey killed one person in Mississippi and destroyed several buildings there and in Louisiana. Crop damage in Louisiana was preliminarily estimated at \$5,000,000 and total losses for Louisiana and Mississippi were roughly estimated at \$50,000,000.

Winds reached 100 miles per hour at Lake Charles, Louisiana, and Orange, Texas. The center was about 35 miles in diameter and passed near Vinton, Colfax, and Monroe, Louisiana, and Greenville and Oxford, Mississippi. In Louisiana, tides reached 11.9 feet at Cameron Court House and a combined high river stage and hurricane tide reading of 11.4 feet at Morgan City, setting a new record there.

Audrey's history began with a week's circulation over the Bay of Campeche in the southwestern Gulf of Mexico on June 24. Deepening as it moved northward, Navy Aircraft Reconnaissance, at noon on the 25th, indicated the hurricane's intensity. At the same time, a hurricane watch for the Texas and Louisiana coast was issued by the New Orleans office of the Weather Bureau. At 1000 CST, on the 26th, hurricane warnings were issued for the Louisiana coast and at 2200 CST, these warnings were extended to High Island, Texas. At about 1000 CST, on June 27, Audrey crossed the coast line about midway between Beaumont, Texas, and Lake Charles, Louisiana. (Continued on p. 536).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - **PENNSYLVANIA** - Beginning to hatch in northern area. (Adams) MD. - Larvae in sweet corn averaged 6.5 percent in Queen Annes County and 58 percent in Frederick County. Third and fourth instars predominating. (U. Md.) **DEL.** Leaf and whorl injury on corn ranges from light at Summit Bridge to moderately heavy many areas in Sussex County. Indications of less damage generally. (Milliron). **WEST VIRGINIA** - Less than one percent infestation in Randolph and Hampshire Counties. (W. Va. Ins. Sur.). **INDIANA** - Generally light. Corn 40 inches tall 100 percent infested with 3-6 larvae per whorl in Newton County. (Gould). **ILLINOIS** - Pupation and emergence complete except in northeastern area where emergence is about 75 percent. Egg mass counts of 100-400 per 100 plants on early fields. Hatch 75-100 percent except in northeastern area where it is 50 percent. (Ill. Ins. Rept.). **WISCONSIN** - Egg masses on about 25 percent of plants in one field of 30-36" corn (extended) in Grant County. Small numbers elsewhere. Some mortality of newly-hatched larvae. (Wis. Ins. Sur.). **MINNESOTA** - Percentage emergence: southwest 30, central 30, west central 25, south central 50 (small sample). Up to 44 egg masses per 100 plants in southwest with 12 maximum count in south central. (Minn. Ins. Rept.). **IOWA** - Situation similar over State. New egg masses still appearing. Leaf feeding showing up slowly. Maximum egg counts were 500-700 per 100 plants in Perry area. (Iowa Ins. Inf.). **ARKANSAS** - Infestations reported from several east and northeast counties. Percentage of stalks infested: Arkansas County 25 percent, Poinsett 25 percent, Craighead 25-79 percent, Clay 20-30 percent and Independence 33 percent. (Barnes et al.). **ALABAMA** - Severe in corn in north. (Eden). **MISSISSIPPI** - Infesting corn in Tunica County; one large field had estimated yield reduction of 7 bushels per acre. Specimens from Tippah County. (Ingram, Hutchins et al.). **NEBRASKA** - Emergence completed in most areas. Due to stage of growth of most fields, first brood will probably not require control measures. (Andersen). **SOUTH DAKOTA** - Egg-laying underway in east central (10 masses per 100 plants) and southeast (32 per 100). (Hantsbarger). **MISSOURI** - Over State as whole, numbers higher than for several years. Borers entering stalks in southern and central areas but still feeding in whorls in northern area. Situation ideal for heavy second and third-generation damage in southeast. Early corn in central area heavily infested with second to fourth instars. (Kyd, Thomas).

GRASSHOPPERS - **WASHINGTON** - Nymphs per square yard: 1-4 in cheatgrass rangeland area from Wishram to Alderdale, 5-6 in cheatgrass range and 5-40 in crop area south of Ephrata, up to 5 in margins north of Davenport, up to 10 in range area north of Wilbur. (Parkinson). **NEVADA** - Twelve *Oedalenonotus enigma* per square yard on 500 acres in northern Lander County, some migration. (Del Curto). *Camnula pellucida* hatch completed at Deeth, Elko County. Hot dry weather producing some local migration of various species. (Gallaway, June 22). **IDAHO** - Heavy in grassy margins and roadsides Grangeville area. (Cook). Widespread, mostly young *Melanoplus mexicanus*, with up to 100 per square yard in spots in Whitebird area. Average 20 per square yard in Notch Butte area. In Malad area over 20 per square yard, chiefly in roadsides; predominantly *M. bivittatus*. (Smith). Averaging 35 per square yard on 15,000 acres of rangeland in Gem and Payette Counties. Of the species about 40 percent *O. enigma*, 30 percent *M. mexicanus*. (Evans). **UTAH** - Hatch continues generally. Damage to crops and range in some areas. (Knowlton). **IOWA** - Low, 2-10 per square yard, in central and southern areas. Hatch continues. (Iowa Ins. Inf.). **NEBRASKA** - *M. mexicanus* in adult stage in eastern area. Counts of this species, *M. bivittatus*, *M. differentialis* and *M. femur-rubrum* from 83-601 per 100 sweeps in southeast and 60-310 per 100 sweeps in northeast. (Andersen). **OKLAHOMA** - Light for time year in central and southern counties. Most range areas have 1-3 per square yard. Most abundant forms are fourth and fifth instar *M. differentialis*, *M. femur-rubrum*, *Mermeria* sp. and adult *Mel. occidentalis*. Light in alfalfa also. (Coppock). **KANSAS** - *Melanoplus* spp. hatch about complete and adult *M. mexicanus* as far north as Dickinson County, central area. Many local areas have 30-50 per square yard. (Matthew). **MISSOURI** - *Melanoplus* spp. populations vary greatly, major species *M. differentialis*. In scattered areas of northern half of State 3-20 per square in margins and 2-15 in cropland. Damage to alfalfa, clovers, pastures and gardens. Nymphs mostly third and fourth

instars. No damage to row crops yet. (Kyd, Thomas). NORTH DAKOTA - Light to threatening populations of M. bivittatus and M. mexicanus in areas of Benson, Rolette and Pembina Counties; mostly third and fourth instars but some adults. (N. D. Ins. Rept.). MINNESOTA - Heavy mortality of early-hatched M. bivittatus in southeast, south central, central, north central and northwest districts. Only a small hatch of M. femur-rubrum has occurred but should be complete soon after first cutting of alfalfa. C. pellucida predominant in fields in areas of Marshall and Kittson Counties with averages as high as 50 per square yard. WISCONSIN - Major hatch expected after first hay crop removed. (Wis. Ins. Sur.). ILLINOIS - Nymphs 0-54 per square yard in alfalfa. Heaviest in west. Also abundant some roadsides and fence rows. (Ill. Ins. Rept.). DELAWARE - Nymphs and adults of Conocephalus brevipennis very abundant in alfalfa in New Castle County. (Milliron).

CORN EARWORM (Heliothis zea) - MARYLAND - Two percent infestation on corn in whorl stage, Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Common in corn whorls, Rising Sun southward. (Milliron). NORTH CAROLINA - Average of 0.6 egg per corn silk in Duplin County. (Farrier). FLORIDA - Larvae averaged one or more per ear on 20 acres of corn in Alachua County. (Hunter, June 15). ILLINOIS - Moths as far north as Dekalb. (Ill. Ins. Rept.). TEXAS - Severe widespread on corn in Red River County. (Herschler). ARKANSAS - Extremely light in silking corn. Eggs difficult to find. Insidious flower bugs plentiful and probably destroying eggs. Moth catches very light. (Barnes et al.). OKLAHOMA - Light in south central area. Entering ears of early corn in Garvin and Carter Counties. (Arbuthnot, Coppock, Gifford). UTAH - Reported only from Washington and Kane Counties to June 24. (Hughes, Knowlton). ARIZONA - Medium on 40 acres of corn in Maricopa County. (Ariz. Coop. Rept.).

CHINCH BUG (Blissus leucopterus) - ALABAMA - Damage to lawns in Dale and Covington Counties. (Grimes.). KANSAS - Nymphs damaging a few milo fields in central counties; margins adjacent to barley and wheat show discoloration and destruction in some areas. Adults throughout some small grain sorghum fields. (Matthew). MISSOURI - Scattered areas over northern half and west central areas have moderate to severe populations in corn and grain sorghums. Migration from small grains continues in northern third of State. (Kyd, Thomas).

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Threat remains. (Wis. Ins. Surv.). MINNESOTA - Small numbers of moths over State. (Minn. Ins. Rept.). MICHIGAN - Appearing in Grand Haven and Bay City in fields of lodged small grain. Some migration. (Hutson). PENNSYLVANIA - Two small outbreaks on oats in Franklin and York Counties, June 20. Some spotted injury Lancaster County. (Pepper). IOWA - Few in corn in Webster County. (Iowa Ins. Inf.).

CUTWORMS - ILLINOIS - Damage still occurring on corn, one field was 85 percent destroyed. (Ill. Ins. Rept.). INDIANA - Destroying several hundred acres of corn in Union County. (Gould). NEBRASKA - Euxoa detersa light and spotted in corn in several counties. (Andersen). MISSOURI - Destroying stands of corn and cotton in some overflow land in extreme southeast area. (Kyd, Thomas). WASHINGTON - Crymodes devastator adults emerged in grass seed-growing areas near Dishman. (Harwood).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - On corn over State. Last instar larvae as far north as Winnsboro. (Oliver). OKLAHOMA - Heavy infestation and damage on corn in south central counties. Occurring in 30-90 percent of whorl-stage corn. Up to 60 percent of later corn has larvae in silks. (Arbuthnot, Coppock, Gifford).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - MARYLAND - Average of 7 percent in corn, Prince Georges County, light in St. Marys and Caroline Counties. (U. Md., Ent. Dept.). VIRGINIA - Much damage to corn in Patrick County. (Amos, Olinger). DELAWARE - Larvae common at Rising Sun to very numerous near Georgetown in whorls of corn. (Milliron).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - LOUISIANA - Damaging corn in areas of Franklin Parish. (Oliver). ARIZONA - Light in June-planted sorghum in Phoenix area, 335 plants damaged in 900 feet of row. (Ariz. Coop. Rept.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARIZONA - Light on 80 acres of sorghum and medium on 40 acres of corn in Maricopa County. (Ariz. Coop. Rept.). OKLAHOMA - Light on corn in Cleveland County. (Arbuthnot, Coppock, Gifford). ARKANSAS - Infestation from 25-35 percent in Cleburne County. (Barnes et al.).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Counts of second generation borer on 2 sugarcane plantations averaged 270 per acre in St. Mary Parish and 162 per acre in Iberia Parish. (Oliver).

STALK BORERS - TEXAS - Medium on corn in Red River County. (Herschler). DELAWARE - Papaipema nebris common in corn whorls near Georgetown. (Milliron).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - MISSOURI - Several fields of early corn along Mississippi River, especially in Mississippi and New Madrid Counties, show spots of severe lodging. (Kyd, Thomas).

SAP BEETLES - MARYLAND - Over 4 percent of corn examined in Queen Annes County infested. Building up. (U. Md., Ent. Dept.). MISSOURI - Carpophilus spp. adults in most early corn over State. (Kyd, Thomas).

WHITE GRUBS - ILLINOIS - Scattered damage to corn. (Ill. Ins. Rept.). NEVADA - Aphodius sp. grubs range up to 100 per square foot in native pasture in Elko County. Severe damage to principal grasses. (Menke).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - DELAWARE - Unusual number of adults active on corn in Georgetown-Bridgeville area. (Milliron).

SOD WEBWORMS - PENNSYLVANIA - Local replanting of corn in Lancaster and Somerset Counties. (Pepper, Udine).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Adults feeding on corn in several areas. Unusually abundant and destructive near Georgetown and Bridgeville. (Milliron).

A COLASPIS (Colaspis sp.) - INDIANA - Injuring corn in Allen, Marshall, Pulaski and Starke Counties. (Gould).

WIREWORMS - ILLINOIS - Occasional fields damaged. Up to 4 larvae per hill of corn. (Ill. Ins. Rept.). NORTH DAKOTA - Damaging corn in Grant County. (N. D. Ins. Rept.). MISSOURI - Widely-scattered fields of small corn in extreme southeast have spots up to 1 acre in size killed by Horistonotus uhlerii. (Kyd, Thomas).

MORMON CRICKET (Anabrus simplex) - NEVADA - New infestation reported on lower Sonoma Range, Pershing County. Copulation occurring. (Gallaway, June 22). IDAHO - Scattered adults on range areas in Payette and Gem Counties. Most females gravid. (Evans).

ENGLISH GRAIN APHID (Macrosiphum granarium) - IDAHO - Extremely light in wheat fields in eastern area. (Mackie). Same in northern area but slowly building up in some fields. (Gittins). WASHINGTON - Moderate infestation on grain heads in Moses Lake area. Treatment in occasional field. (Landis).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Heavy widespread on grain sorghum in Delta and Kaufman Counties. (Hawkins). OKLAHOMA - Generally heavy on corn, hundreds per tassel. (Arbuthnot, Coppock, Gifford). MISSOURI - Moderate to heavy in whorls of corn and grain sorghum. Apparently no damage. (Kyd, Thomas).

ALFALFA WEEVIL (Hypera postica) - IDAHO - Widespread but generally moderate on alfalfa in eastern area with some severe infestation in Raft River Valley and Ft. Hall areas. Early cutting of alfalfa hay to reduce losses general throughout entire southern part of State. (Mackie, Smith). About 90 percent pupation in Adams County. (Portman). UTAH - Retarding some second-crop alfalfa. (Knowlton). SOUTH DAKOTA - Larvae average 60 per 10 sweeps in uncut alfalfa, Lawrence County. No economic loss to first hay crop in area. (Walstrom, Lofgren). PENNSYLVANIA - Adults fairly plentiful on alfalfa in south central area where poor control obtained earlier. (Pepper).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Abundant on clovers in Benewah, Kootenai and Bonner Counties. Counts often exceeding 5 per sweep. (Mackie). Counts of 2-3 per sweep on clover in Grangeville area. (Cook, Portman).

SPOTTED ALFALFA APHID (Therioaphis (Pterocallidium) maculata) - CALIFORNIA - Appeared about 6 weeks earlier than in 1956 on Ryer Island, Solano County. Light generally but populations ranged to heavy in Chino district of San Bernardino County and general infestation ranging to severe in Tulare County. (Cal. Coop. Rept., May). UTAH - Increasing in abundance in several southern localities including Kane County. Present in 7 southern counties now. (Knowlton, Rose). TEXAS - None found in Rockwall County. (Hawkins). OKLAHOMA - Low in all sections. Counts in central and southern fields 0-5 per 10 sweeps. (Coppock). KANSAS - None found in alfalfa fields in 7 central counties. Few found in Marion County with counts of 10-25 per 25 sweeps. No populations of importance in State at present. (Matthew). NEBRASKA - Light in 5 counties in southeast and 9 in northeast areas. (Andersen). ILLINOIS - Up to 30 per 100 sweeps in Hancock, Adams, Pike and Calhoun Counties. (Ill. Ins. Rept.). VIRGINIA - Widespread in Prince Edward County alfalfa fields but control not warranted. (Striplin).

PEA APHID (Macrosiphum pisi) - ILLINOIS - Up to 10,000 per 100 sweeps on alfalfa in west and southwest sections. (Ill. Ins. Rept.). MINNESOTA - Counts high on alfalfa in northwest. (Minn. Ins. Rept.). SOUTH DAKOTA - Abundant in alfalfa fields of Clark area; 180 per 10 sweeps. (Hantsbarger). NEBRASKA - Light to moderate in northeast; 75-150 per 25 sweeps. Fungus disease effective. (Andersen). OKLAHOMA - Light, fairly uniform populations in central and southern alfalfa fields (10-50 aphids per 10 sweeps.). ARIZONA - Counts of 15-20 per sweep on alfalfa in areas of Maricopa County. Generally decreasing in Graham County. (Ariz. Coop. Rept.).

PLANT BUGS - UTAH - Lygus bugs generally moderate to numerous, nymphs abundant. Injury to alfalfa buds common to delayed-treated seed crop. (Knowlton). ARIZONA - Lygus spp. found at 3-4 adults, 2-3 nymphs per sweep on 80 acres of alfalfa in Maricopa County. Building up on alfalfa at Safford, Graham County. (Ariz. Coop. Rept.). NEBRASKA - Adelphocoris lineolatus very abundant in alfalfa in northeast with counts of 50-75 per 25 sweeps, A. rapidus adult counts of 7-15 adults per 25 sweeps in alfalfa in northeast. (Andersen). SOUTH DAKOTA - Lygus sp. nymphs and adults averaged 28 per 10 sweeps in alfalfa in east central and northeast areas. (Hantsbarger). MINNESOTA - A. lineolatus averaged 1.5 per sweep on birdsfoot trefoil in Norman and Clay Counties. Lygus sp. averaged 12 per sweep on alfalfa near Stephen and caused severe blasting of buds. (Minn. Ins. Rept.). WISCONSIN - Increasing in alfalfa. (Wis. Ins. Surv.). ILLINOIS - Plant bug nymphs counts of 10-640 per 100 sweeps on alfalfa in west and southwest sections. (Ill. Ins. Rept.).

TARNISHED PLANT BUG (Lygus lineolaris) - PENNSYLVANIA - Large numbers in alfalfa sweepings at Huntingdon. (Udine). MARYLAND - Adults averaged 1-3 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.). ILLINOIS - Heaviest in southwest area; 8-500 per 100 sweeps on alfalfa. (Ill. Ins. Rept.). LOUISIANA - Heavy in alfalfa in Bossier Parish with counts of 300-400 per 100 sweeps in several fields. (Oliver). MINNESOTA - Averaged 2.5 per sweep on birdsfoot trefoil in Norman and Clay Counties. (Minn. Ins. Rept.). NEBRASKA - Very abundant most alfalfa fields. Counts of 25-80 per 25 sweeps in northeast. (Andersen).

OKLAHOMA - Increasing in legumes in all areas. Counts of 20-30 adults per 10 sweeps in Garvin, McClain and Murray Counties (south-central); lower other areas. (Coppock).

SPITTLEBUGS - GEORGIA - Moderate infestation on Coastal Bermuda grass in Burke County. Grass apparently dying from attack. (Johnson). IDAHO - Very abundant on a wide variety of wild and cultivated plants in northern area. Some red clover fields near Coeur d'Alene moderately heavy infested, and considerable "gumming" of flower heads. Bulk of population reached late instars or adult stage. (Gittins).

BLISTER BEETLES (*Epicauta* spp.) - MINNESOTA - Marked increase from 1956 noted in *Epicauta* sp. populations, some alfalfa fields averaging 1-2 per sweep. (Minn. Ins. Rept.). NEBRASKA - Some feeding of *E. fabricii* in alfalfa in northeast counties. Counts average 11 per 25 sweeps. (Andersen).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - IDAHO - Adults on most alfalfa and clover fields throughout northern area. Counts seldom exceeding 1 per 2 sweeps. (Gittins).

ALFALFA CATERPILLAR (*Colias philodice eurytheme*) - DELAWARE - Larvae very common in alfalfa generally. (Milliron). OKLAHOMA - Light in central counties, none in southern counties. (Coppock).

A WEBWORM (*Loxostege* sp.) - OKLAHOMA - Building up rapidly in most central and southern alfalfa fields. Counts of 8-15 larvae per 10 sweeps common. (Coppock).

GARDEN WEBWORM (*Loxostege similalis*) - LOUISIANA - Appearing in alfalfa in Bossier Parish, only an occasional larva found. (Oliver).

VARIEGATED CUTWORM (*Peridroma margaritosa*) - NEBRASKA - Light to moderate in alfalfa fields in northeast counties. Counts of 1-6 per 25 sweeps. Many larvae parasitized. (Andersen). IOWA - Variegated cutworms and armyworms damaging second growth alfalfa in Guthrie County. Average of 4 per plant or 15 per square foot. Control warranted. (Iowa Ins. Inf.).

A CLOVER BUD CATERPILLAR (*Grapholitha conversana*) - IDAHO - Heavy in isolated spots within a few fields of alsike clover northeast of Grangeville and destroying 90 percent of clover blossoms. (Cook, Portman).

GREEN CLOVERWORM (*Plathypena scabra*) - ILLINOIS - Ten to 100 per 100 sweeps on alfalfa in west and southwest sections. (Ill. Ins. Rept.). OKLAHOMA - Common in McClain County, 12-16 per 10 sweeps. (Coppock).

THRIPS - ALABAMA - *Frankliniella fusca* damaging peanuts in Houston County. (Grimes). DELAWARE - *Anaphothrips obscurus* throughout State. Lower leaves of corn heavily injured near Glasgow. (Milliron).

POTATO LEAFHOPPER (*Empoasca fabae*) - PENNSYLVANIA - Becoming more abundant in alfalfa in south central but not much injury to second cutting expected. (Pepper). About 3 per sweep on alfalfa, Huntingdon. (Udine). MARYLAND - Adults and nymphs averaged 2-8 per sweep on alfalfa in Montgomery and Frederick Counties. Some light injury. (U. Md., Ent. Dept.). DELAWARE - Abundant in alfalfa at Summit Bridge. (Milliron). ILLINOIS - Counts of 500-6,000 adults per 100 sweeps on alfalfa in west, west southwest and southwest sections. Nymphs 300-8,900 per 100 sweeps. (Ill. Ins. Rept.). WISCONSIN - Counts of 110 per 100 sweeps in Dane County alfalfa. (Wis. Ins. Surv.). MINNESOTA - On alfalfa at 1 per 100 sweeps at Stephen. Average of 11 per 20 sweeps on alfalfa at Rosemount. (Minn. Ins. Rept.). SOUTH DAKOTA - Averaged 1 per 10 sweeps in east central alfalfa. (Hantsbarger). NEBRASKA - Light to moderate in alfalfa in northeast. Counts of 10-80 per 100 sweeps. Counts in panhandle area of 0-3 per 100 sweeps, high count of 133 per 100 sweeps taken east of Lincoln. (Andersen).

KANSAS - Populations vary greatly from field to field. "Hopper-burn" to alfalfa in 6 central counties. Counts of 18-55 per sweep. (Matthew). MISSOURI - Severe yellowing on alfalfa over State. Counts in central and southeast areas of 70-420 nymphs and adults per sweep. (Kyd, Thomas). OKLAHOMA - Light in alfalfa throughout State. Counts of 10-40 per 10 sweeps generally. Causing yellows in at least one field in Payne County. (Coppock).

FRUIT INSECTS

ORCHARD MITES - COLORADO - Populations in peach and apple orchards in Delta and Mesa Counties reduced. (Exp. Sta.). ILLINOIS - Metatetranychus ulmi increasing in untreated orchards in Carbondale area. (Chandler). INDIANA - General increase of M. ulmi in Vincennes area. Leaves show some mottling. (Hamilton). Generally low on apples at Orleans, increasing in localized areas. Damage to peaches at minimum. (Marshall). MARYLAND - Moderate to heavy on upper apple leaves in Howard County. (U. Md., Ent. Dept.). PENNSYLVANIA - Very serious in southeast. (Asquith). M. ulmi and Tetranychus telarius increasing rapidly where uncontrolled on apple in south central area. (Pepper). Appearing on cherry in Erie County. (Adams).

APPLE APHID (Aphis pomi) - ILLINOIS - Numerous many orchards at Carbondale. (Chandler). DELAWARE - Prevalent all locations. (Kelsey). IDAHO - Moderate infestations causing considerable leaf curling at Idaho Falls. (Mackie). UTAH - Seriously infesting some northern home orchards. (Knowlton). PENNSYLVANIA - Very abundant on water sprouts in south central area. (Pepper).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Light most orchards in Mesa County. (Exp. Sta.).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Adult emergence from overwintering larvae about complete at Vincennes. (Hamilton). Hatch building up toward second-brood peak at Orleans. Peak of entries should occur in Orleans area around July 4 to 10. (Marshall). ILLINOIS - Hatch of second brood should begin July 1 at Carbondale. (Chandler). WISCONSIN - Emergence extended in Door County. (Wis. Ins. Surv.). MICHIGAN - Peak egg-laying in Berrien County week of June 17. (Hutson). MINNESOTA - Larvae $\frac{1}{4}$ to $\frac{1}{2}$ inch long in apples; development slow. (Minn. Ins. Rept.). PENNSYLVANIA - Adults still emerging, some larvae almost mature in south central area. (Pepper).

RED-BANDED LEAF ROLLER (Argyrotenia velutinana) - DELAWARE - Early instars active at Rising Sun. (Kelsey). WISCONSIN - First generation becoming more evident in Door County. (Wis. Ins. Surv.). MICHIGAN - Ten percent emergence of adults and more than 50 percent pupation. (Hutson). PENNSYLVANIA - Eggs hatching and young larvae feeding on apple in south central area. (Pepper).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - About 8 percent of expected number emerged at Waltham. (Crop Pest Cont. Mess.).

PEACH TREE BORER (Sanninoidea exitiosa) - COLORADO - Pupation underway in Larimer, Mesa and Delta Counties. Emergence earlier than realized. (Exp. Sta.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - First-brood activity peak June 17 to 18 at Vincennes. Injury light except in localized orchards. (Hamilton). ILLINOIS - New twig infestations starting some orchards at Carbondale. (Chandler).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - IDAHO - Damaging infestations on plums at Bonners Ferry. (Portman).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Second-brood adults emerging at Carbondale. Expected to be heavier than in past several years. (Chandler).

CHERRY FRUITWORM (Grapholitha packardii) - WISCONSIN - Populations high some Door County orchards. (Wis. Ins. Surv.).

A CHERRY CURCULIO (Tachypterellus consors cerasi) - COLORADO - Heavy infestation, 70-80 percent damage, in sour cherries in Larimer County. (Exp. Sta.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Three adults trapped at Tijuana, Baja California, during the week ending June 19 and seven during week ending June 28. These are the first trapped during 1957. The forty-third spray application is in progress in area. (PPC, Mex. Reg.).

CURRENT BORER (Ramosia tipuliformis) - MICHIGAN - Very numerous in currants in Eau Claire area. (Hutson).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Damaging pecan foliage. (Eden, Grimes).

AN APHID (Monellia sp.) - FLORIDA - Unusually heavy infestations on pecans in Monticello area, Jefferson County. (Phillips, June 17).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Moderate to heavy damage from first-generation larvae to pecans in Monticello area, Jefferson County. Second-generation larvae now active. (Phillips).

TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - VIRGINIA - Very heavy damage to tomatoes in Westmoreland County. (Ptucha). DELAWARE - Larvae active earlier than usual on green tomatoes. (Late News.). INDIANA - Populations low on early tomatoes in Knox County. (Osmun).

A TORTOISE BEETLE (Deloyala vittata) - MICHIGAN - Common on tomatoes in Traverse City area. (Hutson).

TARNISHED PLANT BUG (Lygus lineolaris) - PENNSYLVANIA - Injury showing many untreated potato fields in south central area. (Pepper).

STALK BORER (Papaipema nebris) - MAINE - Populations generally light in Presque Isle vicinity, moderate on potatoes one farm. (Shands).

POTATO LEAFHOPPER (Empoasca fabae) - PENNSYLVANIA - Becoming more abundant on potatoes and beans in south central area. (Pepper). MARYLAND - Heavy on potatoes in Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Numerous at Smyrna; very abundant at Harrington. (Milliron). WISCONSIN - Populations building up, should be controlled. (Wis. Ins. Surv.). NORTH DAKOTA - None collected on potatoes to date. (N. D. Ins. Rept.). IOWA - Severely damaging potato and bean plantings. (Iowa Ins. Inf.). MISSOURI - Continued damage to beans and potatoes and other crops. (Kyd, Thomas).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Adult counts on matrimonyvine 40 per 100 sweeps. Eggs and nymphs common. Some nymphs third instar. (Exp. Sta.).

HORNWORMS (Protoparce spp.) - VIRGINIA - Very heavy damage to tomatoes in Westmoreland County. (Ptucha). DELAWARE - Not numerous anywhere on tomatoes. (Milliron).

FLEA BEETLES - MAINE - Populations of Epitrix cucumeris on potatoes generally very light in Presque Isle vicinity, feeding injury spotted. (Shands). PENNSYLVANIA - Adult Systema blanda feeding heavy on carrot foliage in York County. Very abundant with serious injury to radish in south central area. (Pepper). DELAWARE - E. cucumeris severe several areas. (Milliron).

MICHIGAN - E. cucumeris very numerous on solanaceous plants at Sodus, June 21. S. blanda numerous on truck crops in Sodus, Stevensville, Niles and St. Joseph areas and troublesome on some sugar beet fields in Munger area. (Hutson). WISCONSIN - Populations of E. cucumeris high in most potato and tomato-growing areas. (Wis. Ins. Surv.). NORTH DAKOTA - Populations of E. cucumeris much below normal for date. (N. D. Ins. Rept.). IDAHO - Heavy damage by Phyllotreta pusilla to sugar beets and cabbages in two fields in Madison County. (Mackie). E. subcrinita common in Bingham, Butte, Custer and Fremont Counties. Most abundant on potatoes in Fremont County, several fields with 1-5 per plant. (Bishop).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - PENNSYLVANIA - Adults abundant on untreated potatoes in south central area. (Pepper). DELAWARE - Larvae and adults continue destructive on commercial tomatoes near Bridgeville. (Milliron). NORTH DAKOTA - Extremely light infestations in Grand Forks and northern Thrall Counties. Populations apparently lowest in 10 years. (N. D. Ins. Rept.). COLORADO - Populations widespread through eastern area; lighter than anticipated generally. (Bishop).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Populations higher than for years many sections. Control warranted on lettuce, celery, carrots and parsnips. (Wis. Ins. Surv.). SOUTH DAKOTA - Populations average 12 per 10 sweeps in flax in northeastern area. (Hantsbarger). IOWA - Infected up to 6 percent of carrots with virus some fields in Clear Lake. (Iowa Ins. Inf.).

ROOT MAGGOTS (Hylemya spp.) - WISCONSIN - H. antiqua and H. brassicae attacking hosts some sections. (Wis. Ins. Surv.). MICHIGAN - H. antiqua and H. cilicrura adults emerging in numbers at Stockbridge, Bath and East Lansing. (Hutson).

HARLEQUIN BUG (Murgantia histrionica) - NORTH CAROLINA - Adults increasing on collards in Duplin County. (Farrier).

CABBAGEWORMS - PENNSYLVANIA - Beginning to cause damage on untreated cabbage in south central area. (Pepper).

CABBAGE CURCULIO (Ceutorhynchus rapae) - PENNSYLVANIA - Heavy infestation 3 plantings of broccoli and cabbage in Clearfield County; less numerous on cabbage with 20 per plant. (Adams).

SQUASH VINE BORER (Melittia cucurbitae) - ALABAMA - Damaging squash in Covington County. (Grimes).

SQUASH BUGS - DELAWARE - Anasa tristis and A. armigera adults and eggs numerous in Harrington and Bridgeville-Georgetown areas. (Milliron).

CUCUMBER BEETLES - MICHIGAN - Diabrotica spp. continue troublesome in East Lansing area. (Hutson). WEST VIRGINIA - Acalymma vittata light on cucumbers with some wilting in Randolph County. (W. Va. Ins. Surv.). DELAWARE - A. vittata abundant on squash at Harrington. (Milliron).

STINK BUGS - LOUISIANA - Euschistus bifibulus continues heavy on tomatoes in St. Bernard and Plaquemine Parishes. Nezara viridula moderate on cowpeas in Bossier Parish. TEXAS - Heavy local infestations on blackeyed peas in Van Zandt County. (Hawkins).

SPIDER MITES - MASSACHUSETTS - Serious some areas on beans, cucumbers and other vegetables. (Crop Pest Cont. Mess.). MARYLAND - Tetranychus telarius moderate to severe on raspberry in Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Heavy infestations of Tetranychus sp. in commercial lima beans in Primehook Neck area. (Milliron).

COWPEA CURCULIO (Chalcodermus aeneus) - ALABAMA - Severe damage to pole beans in Cullman County. (Ruffin).

PEA APHID (Macrosiphum pisi) - WISCONSIN - Populations exceptionally low. (Wis. Ins. Surv.). IDAHO - Very abundant on untreated fields in parts of Latah and Nez Perce Counties. Light to moderate in Benewah; Kootenai and Bonner Counties. (Gittins). Infestation continue generally heavy, ranging from 5-20 per tip in Moscow area. Most fields require second treatment. (Portman).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Unusually prevalent on lima beans north of Frederica. (Milliron). VIRGINIA - Abundant and caused total destruction of untreated beans some plantings in eastern area. (Brubaker, Greenwood, Hofmaster). COLORADO - Activity increased with wide distribution in Larimer, Weld, Adams and Boulder Counties. Egg numerous. Control warranted. (Exp. Sta.). UTAH - Damaging in Kane County and appearing commonly with some damage in central and northern areas. (Knowlton).

BEAN LEAF ROLLER (Urbanus proteus) - LOUISIANA - Damaging beans in St. Bernard and Plaquemine Parishes. (Oliver).

SOUTHERN ARMYWORM (Prodenia eridania) - LOUISIANA - Very heavy and damaging to okra in St. Bernard and Plaquemine Parishes. Causing more damage to vegetable crops and more widespread than any time during past decade. (Oliver).

ONION THRIPS (Thrips tabaci) - MICHIGAN - Numerous on onions at Sodus, spring wheat at East Lansing and garden crops at Traverse City. (Hutson, June 21).

ASIATIC GARDEN BEETLE (Autoserica castanea) - MARYLAND - Heavy outbreaks of adults in Salisbury area; homeowners alarmed. (U. Md., Ent. Dept.).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - MINNESOTA - Adults averaged 1-5 per 10 minute observation in sugar beet fields north of Crookston and Stephen. Apparently less numerous than 1955 or 1956. (Minn. Ins. Rept.).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - WISCONSIN - Moderate to heavy in several counties, more acute in untreated plantings. (Wis. Ins. Surv.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - IDAHO - Moderate to severe root damage in strawberry field northwest of Nezperce. (Mackie).

THRIPS - VIRGINIA - Heavy on raspberries in Westmoreland County. (Ptucha).

ARMYWORMS - MISSISSIPPI - Damaging in Lincoln, Neshoba, Perry and Stone Counties to truck crops and gardens. (Kislanko, Hutchins). LOUISIANA - Laphygma frugiperda, Prodenia ornithogalli, P. eridania and Prodenia sp. generally troublesome on vegetables in St. Bernard and Plaquemine Parishes. (Oliver).

APHIDS ON POTATOES - MAINE - Spring migrations in progress in Presque Isle and vicinity. Peaks of maturation of spring migrants of Aphis abbreviata and A. solanifolii occurred soon after mid-June; still maturing but spring migration of A. solanifolii ending. Populations on untreated potatoes rose sharply during week. Approximately 5 percent of plants infested compared with 1 and 1/2 percent week ending June 22. A. abbreviata predominate, followed by A. solanifolii and Myzus solani. (Shands). UTAH - Myzus persicae generally moderate on potatoes. (Knowlton). WASHINGTON - Seventy percent of early-potato crop infested with winged and wingless forms of M. persicae in Babcock Ridge area near Quincy. Require treatment. (Landis).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - Light to moderate first brood damage to tobacco in Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - Average 2-5 eggs and one first instar larvae per 50 plants generally. (Guthrie, Barron).

TOBACCO BUDWORM (Heliothis virescens) - NORTH CAROLINA - Very light on tobacco in eastern area. (Guthrie, Barron).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Moderate infestations on tobacco in Tift County. Moderate to heavy in Irwin, Coffee, Bacon, Ware and Pierce Counties. (Johnson).

A TREE CRICKET (Oecanthus sp.) - VIRGINIA - Adults causing medium damage to margins of 5 acre tobacco field in Pittsylvania County. (Dominick).

GRASSHOPPERS - NORTH CAROLINA - General and very light on tobacco in eastern area. (Guthrie, Barron).

Continued from page 526

Frontal rains were unusually heavy from east central Kansas to central Indiana on the 27 and 28. Totals of 3-5 inches fell in east central Kansas and 3-7 inches in east central Missouri. In Illinois, a 30-50 mile wide belt extended across Illinois from Carlinville to Paris where over 5 inches fell in 15 hours with peak amounts of 9-11 inches from Pana to Paris. Severe flooding of farm land resulted and many highways were under water for 1-3 days. A belt of heavy rain extended into Indiana to above Indianapolis where 6-7 inches in 24 hours caused much damage and several persons were drowned.

The week's rainfall exceeded two inches over much of the Ohio and lower Mississippi Valleys, Alabama, southern Missouri, and eastern Kansas. The heavy rain and wet soil caused a further decline in wheat, corn, soybean, and cotton prospects, except in southern Alabama where the rains were generally beneficial.

Along the northeastern coast, drought continued in southern Maryland, most of New Jersey, Rhode Island, parts of Connecticut, and southeastern Massachusetts.

Rainfall generally was light in Arkansas and Texas and the western great plains. West of the continental divide, rainfall was limited to some scattered showers in Arizona and some northern sections. The dry, sunny weather favored crops in most of the Far West.

In the Southwest, hot days were the rules. On the 24, Bakersfield, California, recorded 111° equaling the airport record set there in 1933. At Presidio, Texas, the mercury rose to 112° or above each day after the 24, and Yuma, Arizona, recorded 120° on the 24. Temperatures for the week averaged from 3-6 degrees above normal in this area, while the coolest weather relative to normal occurred in the north central interior, where weekly averages were 3-6° below normal. (Summary supplied by U. S. Weather Bureau).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Serious threat in many counties. High weevil populations in many Piedmont fields and high square counts also reported. From 3 to 80 percent infestation in untreated cotton in 18 counties. Some high counts: 80 percent on 5 farms in Montgomery County, 66 on 1 in Richmond County, 61 on 4 in Hoke County, 49 on 3 in Scotland Co. (Cott. News Lett.). SOUTH CAROLINA - Reported increasing over State. (Cott. Lett.). Fourteen percent infestation in untreated plots in 6 experimental fields, Florence County. Thirty-two treated fields in Darlington County had 10 percent punctured squares. First-generation weevils appearing most fields. (Walker et al.). TENNESSEE - Weather ideal for buildup in southwestern counties, and overwintered weevils very active in cotton having squares. Average square infestation in 5 counties was 19 percent compared with 17 at same time last year. Considerable damage expected if rains continue. (Locke). MISSISSIPPI - Between generations in delta counties; 2.6 percent square infestation in 30 fields. First-generation weevils appearing. (Merkl et al.). ALABAMA - Twenty-four fields checked in 5 southeastern counties and all fields found infested at rate of 32 percent punctured squares. (Grimes). LOUISIANA - Squares examined in 75 fields in Madison Parish and all fields infested. Forty untreated fields had 27 percent and 35 treated fields had 18 percent infested. (Smith et al.). GEORGIA - Average of 20 percent punctured squares in 32 fields in 17 middle and south Georgia counties. (Johnson). ARKANSAS - A few first-generation weevils emerging in early cotton in extreme southeast. Infestations continue lighter than usual. Of 2739 fields scouted, 721 or 26 percent infested compared with 18 percent last week and 50 percent a year ago. (Barnes et al.). TEXAS - Migration underway in lower Rio Grande Valley; considerable boll damage. (Deer). Light in coastal bend, south central, east and central areas and light to medium in southwest area. (Turney, Martin, June 21).

BOLLWORMS (*Heliothis* spp. et al.) - GEORGIA - Of 32 fields checked in middle and southern counties, 12 infested with average of 2 eggs and 1 larva per 100 terminals. (Johnson). ALABAMA - Found in 17 of 24 fields in 5 southeastern counties; average infestations light to medium. (Grimes). MISSISSIPPI - Between generations in delta counties. (Merkl et al.). TENNESSEE - Increasing in west Tennessee with some fields requiring control. (Locke). LOUISIANA - Hardly enough to warrant controls in Madison Parish. (Smith et al.). ARKANSAS - Infestations light. Low moth catches indicate that infestation in cotton should continue light for some time. (Barnes). TEX. - Generally light June 21. (Martin, Turney).

FLEAHOPPERS - TEXAS - Heavy in many fields of lower Valley, coastal bend, southwest, upper coastal and parts of south central and east areas. (Turney, Martin, June 21). TENNESSEE - Some increase. (Locke).

PLANT BUGS - MISSISSIPPI - Tarnished plant bugs causing light damage in a few delta county fields. (Merkl et al.). TENNESSEE - Light damage to small squares in Fayette County. (Locke). LOUISIANA - Fleahoppers and tarnished plant bug more abundant in most fields in Madison Parish than usual. Thirty fleahopper adults and 4 nymphs and 25 tarnished plant bug adults and 1 nymph per 100 sweeps in one location. (Smith et al.). ARIZONA - Eight to 10 *Lygus* spp. per 100 sweeps and 10-12 *Spanogonicus albofasciatus* on scattered fields throughout Salt River Valley. (Ariz. Coop. Rept.).

APHIDS - TEXAS - Generally light, June 21. (Martin, Turney). ALABAMA - Light on cotton in 5 southeastern counties. (Grimes). GEORGIA - *Aphis gossypii* light on cotton in Twiggs, Bleckley and Pulaski Counties; moderate in Irwin County. (Johnson).

THRIPS - TEXAS - Light over most of State. (Turney, Martin, June 21). ARIZONA - Abundant in scattered fields in Maricopa County. (Ariz. Coop. Rept.).

CABBAGE LOOPER (*Trichoplusia ni*) - TEXAS - Increased infestations in lower Rio Grande Valley. (Deer).

SPIDER MITES - GEORGIA - Light on cotton in Irwin and Warren Counties. (Johnson).

BROWN COTTON LEAFWORM (Acontia dacia) - TEXAS - Light in Waller County. (Turney, Martin, June 21).

CUTWORMS - TEXAS - Damage in Schleicher County. (Martin, Turney, June 21).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - PENNSYLVANIA - As high as 30 adults per pine tree in Venango, Warren, McKean, Crawford and Erie Counties. (Adams).

SHOOT MOTHS - PENNSYLVANIA - Rhyacionia buoliana emerged evenly on pine in north-east and southeastern areas. R. rigidana infesting new Scotch pine shoots in Crawford and Somerset Counties. (Udine, Adams).

TENT CATERpillars (Malacosoma spp.) - VIRGINIA - Severe on trees and shrubs in Greenville County, probably Malacosoma americanum. (Rogers). MINNESOTA - Defoliation by M. disstria light to complete in St. Louis County, heaviest in Brookston and Albion areas. (Minn. Ins. Rept.). PENNSYLVANIA - Eggs of M. americanum very abundant in southwestern and northwestern areas. (Adams, Udine).

FALL WEBWORM (Hyphantria cunea) - DELAWARE - Nests conspicuous throughout State. (Milliron). PENNSYLVANIA - Webs easily noticed along roads on trees in south central area. (Pepper).

MITES - NORTH DAKOTA - Infestations light to moderate on juniper and spruce. (N.D. Ins. Rept.). PENNSYLVANIA - Very severe infestation of Tetranychus telarius on foxglove in Centre County. (Udine).

PALES WEEVIL (Hylobius pales) - PENNSYLVANIA - Small larvae very abundant in pine stumps in Somerset County. (Udine).

PINE SPITTLEBUG (Aphrophora parallela) - WEST VIRGINIA - Numerous adults on pine in Mineral County. (W.Va. Ins. Surv.).

RED-HEADED ASH BORER (Neoclytus acuminatus) - IDAHO - Causing some mortality to mountainash trees in Jerome area. (Wiswall).

PINE CHAFER (Anomala obliqua) - NORTH CAROLINA - Defoliated about 40 acres of pine in Craven County. (McCambridge).

APHIDS - IDAHO - Light infestations on ponderosa pine and moderate to severe on lupines in Spirit Lake area. (Gittins). Considerable numbers on willows in Idaho Falls vicinity, damage not evident. (Mackie). UTAH - Problem many localities on shade trees. (Knowlton). PENNSYLVANIA - Cinara watsoni quite heavy, 15-20 per 18 inch leader, in Scotch pine plantations in northeastern area. (Adams). Few on all Scotch pines in southeastern area. (Udine).

ELM LEAF BEETLE (Galerucella xanthomelaena) - DELAWARE - Conspicuous damage from Smyrna southward. (Milliron).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - MICHIGAN - Widespread outbreak on oak and other deciduous trees in Roscommon and Grayling vicinities of Crawford and Montmorency Counties. (Hutson).

LOCUST LEAF MINER (Chalepus dorsalis) - MARYLAND - Injury to black locust increasing in central area. Adults and larvae present. (U. Md., Ent. Dept.).

TULIPTREE SCALE (Toumeyella liriodendri) - MARYLAND - Heavy on deciduous magnolia in Caroline County. (U. Md., Ent. Dept.).

A TENTHREDINID (Caliroa sp.) - DELAWARE - Larvae and damage common on oak at Greenwood. (Milliron).

WEBWORMS (Salebria afflictella, Tetralopha melanogrammos) - DELAWARE - Larval injury to sweetgums most abundant in Sussex and Kent Counties. (Milliron).

ELM CALLIGRAPHA (Calligrapha scalaris) - NEBRASKA - Damaging elms in south central area. (Hagen).

A CEDAR SCALE (Cryptaspidiotus shastae) - OKLAHOMA - Heavy infestations some localities in central counties; crawlers active. (Apt.).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - General throughout State. Some spruces and junipers almost defoliated in areas of Kent County. (Milliron).

EUROPEAN ELM SCALE (Gossyparia spuria) - UTAH - Elms severely attacked at Logan and Salt Lake. (Knowlton).

LACE BUGS - MARYLAND - Heavy injury to white oaks in Howard County. (U. Md., Ent. Dept.).

A LEAF BEETLE - IDAHO - Abundant larvae and adults causing severe defoliation to willows at Idaho Falls. (Mackie).

MAGNOLIA SCALE (Neolecanium cornuparvum) - PENNSYLVANIA - Heavy infestation most magnolia trees in Westmoreland County. (Udine).

MIMOSA WEBWORM (Homadaula albizziae) - MARYLAND - Webbing in mimosa apparent in southern counties. (U. Md. Ent. Dept.). DELAWARE - First instars active at Smyrna and Harrington. (Milliron).

MOORING CLOAK BUTTERFLIES - NEVADA - Larvae numerous throughout northern area; damaging willows and cottonwoods. (Burge, Gallaway). UTAH - Nymphalis antiopa damaging elm and willow foliage in several northern areas. (Knowlton).

ROSE CHAFER (Macrodactylus subspinosus) - MINNESOTA - Very numerous in New Brighton-Circle Pines area. (Minn. Ins. Rept.).

ROSE CURCULIO (Rhynchites bicolor) - NEBRASKA - Populations higher than recent years. (Pruess).

A LEAFHOPPER (Macropsis fumipennis) - DELAWARE - Adults numerous on honeylocust at Smyrna. (Milliron).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Causing more concern than any other pest at present in State. Infestations light to severe many hosts. Newly-infested areas reported in Smyth, Halifax and Prince Edward Counties. (Morris et al.). MARYLAND - More abundant than usual most sections. (U. Md. Ent. Dept.). NORTH CAROLINA - Several heavy infestations in Pender, Rowan and Pitt Counties. (Honeycutt, Corriher, Mobly). ILLINOIS - First adult East St. Louis, June 19. (Ill. Ins. Rept.). DELAWARE - Very abundant and destructive in New Castle County to ornamentals. (Milliron). GEORGIA - Feeding on shade trees in Clayton and Hall Counties. (Ga. Dept. of Ent.). WEST VIRGINIA - Populations from light to medium in northern, eastern and central areas. (W. Va. Ins. Surv.). PENNSYLVANIA - Adults very abundant generally causing considerable injury. (Pepper, Udine).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NEVADA - Populations very high throughout native meadowland in northern area. (Gallaway). MINNESOTA - Brood of Aedes vexans emerged. Another brood expected about July 5. (Minn. Ins. Rept.). NEBRASKA - Heavy population of Aedes dorsalis in northern Dawes and Sioux Counties and the upper Platte Valley. (Rapp). IDAHO - More abundant than usual throughout northern area, causing considerable annoyance. (Gittins). UTAH - Abundant and very annoying in many counties. (Knowlton).

FLIES - IOWA - Attacking cattle and more numerous this year than in the past 6 years. (Iowa Ins. Inf.).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations remain high all areas. (Howell). IOWA - Numbers range up to an estimated 5,000 per animal, averaging 1,000 per animal in some herds in southern area. (Iowa Ins. Inf.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Slight increase in Stillwater area. (Howell).

BITING MIDGES - UTAH - Annoying in some areas in scattered counties. (Knowlton).

SAND FLIES (Culicoides spp.) - OKLAHOMA - Causing considerable annoyance in northeastern area; larvae prevalent. (Howell).

CHIGGERS - INDIANA - Serious on turkeys in Jasper County; rejected for market. (Gould). Becoming abundant in yards in Tippecanoe County. (Osmun).

SCREW-WORM (Callitroga hominivorax) - ALABAMA - Damaging in Houston County. (Grimes).

STABLE FLY (Stomoxys calcitrans) - VIRGINIA - Building up on untreated beef cattle in Montgomery County, averaging 5-10 per animal. (Turner). OKLAHOMA - Decrease slightly in Stillwater area. (Howell). IOWA - Average of nearly 100 per animal. (Iowa Ins. Inf.).

TABANIDS - VIRGINIA - Heavy and troublesome in Scottsville area on cattle. (Amos). LOUISIANA - Heavy populations of Chrysops spp. in Plaquemine and St. Bernard Parishes. Tabanus spp. abundant around cattle in Pointe Coupee Parish. (Oliver). OKLAHOMA - Becoming prevalent in low areas in eastern part of State. Most prevalent are Tabanus equalis, T. atratus and T. lineola complex with up to 15-20 per animal. (Howell).

TICKS - UTAH - On people and infesting cattle and horses especially at high elevations; (Knowlton). NEBRASKA - Dermacentor variabilis very abundant in northern Dawes and northeastern Sioux Counties, and a moderate population along Niobrara River Valley and lower reaches of Platte River. Small population of D. andersoni in northwestern Dawes County on Fort Robinson Timber Reserve. (Rapp). WEST VIRGINIA - D. variabilis numerous, attacking man in Mineral County. (W.Va. Ins. Surv.).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - CALIFORNIA - Effective control of spotted alfalfa aphid by Praon sp. and Trioxys sp. with help of lady beetle releases in Riverside County. Reduced populations of the aphid in many fields of Orange County due to natural enemies. (Cal. Coop. Rept., May).

LADY BEETLES - IDAHO - Extremely heavy flights in northern Latah County with general activity in many crops. (Gittins).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. orn.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta quin.	
ALABAMA (Counties)								
Baldwin 6/19, 20, 21	2		5	2		4	1	12 4
DeKalb 6/22, 25, 27								12 1
Lee 6/22,25,27	1		8	6		3	2	
FLORIDA								
Gainesville 6/20,25								6
Quincy 6/17								22
Monticello 6/19,25								6
GEORGIA (County)								
Spalding 6/21-27	18	8	277	27	205	70	15	4 1
LOUISIANA								
Baton Rouge 6/22-28		8	170		88	14		13
Curtis 6/19-26		8	172		12	8		32
Franklin 6/19-26		6	70		21	3		
ARKANSAS								
Hope 6/20-26		1		4				
*Morrillton 6/20-26		2		2				
Varner 6/19-25	24	22						
Fayetteville 6/22-28	1	11		19				
Clarksville 6/11-27	9	29		19				
NORTH CAROLINA (Counties)								
Duplin 6/28			21		8	11		2
Johnston 6/28	1	1	6		1	8	2	1
SOUTH CAROLINA (County)								
Oconee 6/22-28	7	2	146	27	65	105	1	13 3
TENNESSEE (Counties)								
Madison 6/18-24	21	19	84	2		56		7
Lawrence	8	8	18	4		6		13 4
Maury	34	6	96	8		12		14 3
Robertson	12	2	18	18		6		14 6
Cumberland	3	1	1			1		23 3
Knox	42	32	103	32		43		
Greene	32	7	17	16		11		2 3
Johnson	85	119	17	4		3		
TEXAS								
Brownsville 6/19-21		64	40		160	564	16	
Waco 6/22-28	5	2	27	13	62	106		
ILLINOIS								
Urbana 6/20-26	184	28	10	19		4		8
INDIANA (Counties)								
Orange 6/17-24	166	19	16	2		1		26 7
Tippecanoe 6/20-26	22	1	5	2				2
KANSAS								
Manhattan 6/23-26	162					19		2
Hays 6/21-25	113					13		
NEBRASKA (Counties)								
Lancaster 6/17-22	1565	971		48		125		
Lincoln 6/13-19	755	20		163		2		
WISCONSIN								
Arlington 6/19-25	564							
Eau Claire 6/9,17,19, 20,23-25	36							
La Crosse 6/18-20,24	50							
Platteville 6/24	72							
MARYLAND (County)								
Montgomery 6/21-26	14	2		1		2		1 5

* Two traps Morrillton

LIGHT TRAPS COLLECTIONS
(Continued)

	Pseud. unip.	Agrot. yps.	Prod. orn.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta quin.
SOUTH DAKOTA							
Brookings 6/27	133	10		4			
MISSISSIPPI							
*Stoneville 6/21-27	19	20	403	3	38	99	14
Grenada 6/21-26			3		5	6	12
Senatobia 6/26		6	5		1	4	2
State College 6/21-26	118	2	176	5	26	11	2
							1

* Four traps Stoneville.

MISCELLANEOUS INSECTS

CARPENTER BEES - KANSAS - Damage to farm buildings in several southeast Kansas areas. (Knutson).

PAINTED-LADY (*Vanessa cardui*) - IDAHO - Infestations on thistles in southern area. If build-ups continue damage to home gardens may occur. Extremely abundant on Canadian-thistle in Lincoln County. (Manning). Many adults and pupae found in field near Howe, Butte County. (Mackie). Defoliating thistles in Aberdeen area. (Bishop).

CORRECTION:

CEIR 7(25): 494 under BOLL WEEVIL - LOUISIANA - should read "Some fields with up to 25 per 100 feet of row in Rapides, Pointe Coupee and St. Landry Parishes."

ADDITIONAL NOTES

NEW YORK - APPLE MAGGOT emergence started June 10 which is the earliest on record for the Hudson Valley. RED-BANDED LEAF ROLLER serious in some orchards in Orleans County. EUROPEAN RED MITE has shown sharp buildup in some prune and apple orchards of Niagara County. ORCHARD MITES heavy in Ulster County. APPLE APHID heavy in Ulster County orchards. Adults of MEXICAN BEAN BEETLE heavy in bean fields in Allegany County. POTATO LEAFHOPPER heavy on beans in Allegany County. EUROPEAN CORN BORER may be severe in Erie County. COLORADO POTATO BEETLE plentiful on tomatoes in Monroe and Niagara Counties. ARMYWORM caused extensive damage to wheat and corn in Delaware and Orleans Counties. (N. Y. Wkly. News).

SURVEY METHODS

GRASSHOPPERS

Adult Survey (Revised Instructions)*

Soon after grasshoppers have dispersed from nymphal concentrations and have reached the adult stage all infested areas should be surveyed. This survey should be timed to coincide with peak populations, enabling completion of the survey before appreciable decline in grasshopper numbers occurs. Known infestations and new infestations should be classified and mapped according to the following table.

Grasshopper Adult Infestations

No. of Adults Per Square Yard		Rating	Map Color
Field	Margin		
0-2	5-10	1.0	White
3-7	11-20	2.0	Green
8-14	21-40	3.0	Orange
15-28	41-80	4.0	Blue
Over 28	Over 80	5.0	Red

Evaluation of Adult Populations

To obtain an estimate of the number of adult grasshoppers per square yard, a system of multiple estimates should be used. This involves a series of actual counts of grasshoppers as they leave a square foot, selected by the surveyor well ahead of his line of march. Eighteen counts should be made 15-20 paces apart through the range, field or margin being sampled. At the completion of the count, the total number of grasshoppers from the 18 square feet should be computed. This total divided by 2 will convert this figure to the number of grasshoppers per square yard. It is advisable to occasionally lay off a square foot on the ground to keep the size of this unit area fixed in mind. The time of day, temperature, density and height of vegetation all affect grasshopper activity and should be considered in making counts of grasshoppers.

Where hatching has been irregular and where populations of mixed species exist, nymphs may be present with adult grasshoppers. In making the adult survey, if the nymphs are in the fourth or fifth instars, they should be counted as adults. If the occurrence of large numbers of first to third instars of nymphs of economic importance is encountered frequently in an area, it is advisable to delay the survey until a later date. If a delay is impractical and this situation involves only an occasional stop, reduce the count of first to third instar nymphs to one-third before the figure in terms of adults is recorded on the record sheet.

In large field areas where fields consist of 80 acres or more and in range areas where the vegetation is uniform only one habitat need be examined at each stop.

* This replaces instructions for adult survey in Cooperative Economic Insect Report Survey Methods (Reissued September 1955), page 5.

In diversified crop areas where fields are usually less than 40 acres, or in range areas where several vegetative types exist, two or more fields, and in range, each of the habitats should be sampled. The population in each crop and habitat should be determined. These populations should be averaged to determine a population for the stop. This average population of all fields or habitats sampled is used to rate the stop.

In all cases, the observer should walk sufficiently far into each field to insure that the count of grasshoppers represents an average value for the field examined. Likewise, on the margin, a sufficient length of the margin should be examined to insure an average count. Population counts on the margin should also represent an average value for the entire width, from the edge of the road to the edge of the field. Most margins will be 2 or more rods wide and for all such margins, the population count should be recorded as an average for the entire width and the length examined. However, for narrow margins of less than 2 rods, the population count should be reduced proportionately. For example, the population count on a one-rod margin would be reduced one-half. When there is no distinct vegetative difference between the field and the margin and there is no concentration of grasshoppers along the margin, the field count should be recorded for the stop. No separate margin count need be made. This would apply to some ungraded roads or to roads through crops.

After the number of grasshoppers per square yard has been determined for any stop, a rating for that stop is recorded on Form GC 67 from the adult rating table found on p. 543. When marginal and field ratings differ, the higher rating should be assigned to the stop. The field counts are not to be combined with the marginal counts and averaged to obtain stop ratings.

The stops in the various crops and range should be well distributed and in approximate proportion to their relative county acreage.

The adult survey should be started in each state at the earliest possible time, determined by the maturity and behavior of the grasshoppers, and completed, where possible, within a period of two weeks. Actually the best survey is that which is the culmination of a whole season's observation of grasshopper development by the surveyor who had the opportunity to observe them in given areas. From 5 to 15 stops should be made in each county, depending on the nature of the infestation, the supervisor's knowledge of the infestation, and the size of the county. Fewer survey stops are required in an area which is lightly and evenly infested than in an area which is heavily and irregularly infested. In small counties and in counties where the supervisor is familiar with the infestation, 5 stops will usually be adequate. Areas in which infestations are of doubtful degrees of intensity, and areas which border known heavy infestations should be given more attention, and as many as 10 stops may be needed. Only in large counties or ones with extremely irregular infestations should it be necessary to make as many as 15 stops. In order to locate the boundaries of infestations more definitely, exploratory examinations, which need not be formally recorded, may be made in addition to the regular stops. (PPC Regional Survey Entomologists).

